ABSTRACT

PT. Jorong Barutama Greston is a company specializing in the field of coal mining. Its mining activity is carried out by applying surface mining system with the method of strip mine, where one of the locations that still operates is Pit M2W. This mining activity can cause Acid Mine Drainage discharge due to the unfolded coal, which contains elements of sulfur, being in direct contact with the air and rainwater.

The main source of mine water at the location of the coal mining of Pit M2W is the rain falls straight into mining field, while groundwater is not contributing to mine water discharge. The results indicated a maximum rainfall of 126,6 mm/day and precipitation plan by repeated 2 years rain period of 116,76 mm/day and the rainfall intensity of 40,48 mm/hour. Rain catchment areas in this research are divided into 1 DTH, with DTH extents of 1 = 0.12 km^2.

Generally present in the process of coal formation are inherent impurities in the form the mineral pyrite (FeS2) which are present at the time of the coal formation, either theoretically in situ or drift. When these interact with water and air, acid mine drainage is formed.

PT. Jorong Barutama Greston it self, through Enviromental Plan and Monitor Department, has examined the mine water using hydrated lime {$Ca(OH)_2$}. Hydrated lime is a product derived from heating with the temperature of 900°C, which then formed lime (CaO), and subsequently it was reacted with water (H_2O), thereby resulted in hydrated lime.

The acid mine drainage treatment is conducted in the outlet of the settling pond. However the use of the hydrated lime {$Ca(OH)_2$} remain less than optimal, because there are more settled hydrated lime {$Ca(OH)_2$} compared to those that reacted to acid mine drainage with lowest pH of 2.58. Therefore, studies on the use of hydrated lime {$Ca(OH)_2$} are necessary.

After further study, it was found that to neutralize acid mine drainage using hydrated lime, it takes Ca $(OH)_2$ of 0.1 gram with the concentration of 5 x 10^{-3}M for 1 liter of H_2SO_4 with the concentration of 1.31 x 10^{-3}M. Thus, to neutralize acid mine drainage with an average discharge of 782,57 m^3/day, hydrated lime ($Ca(OH)_2$) of 78,257 kg/day is required.